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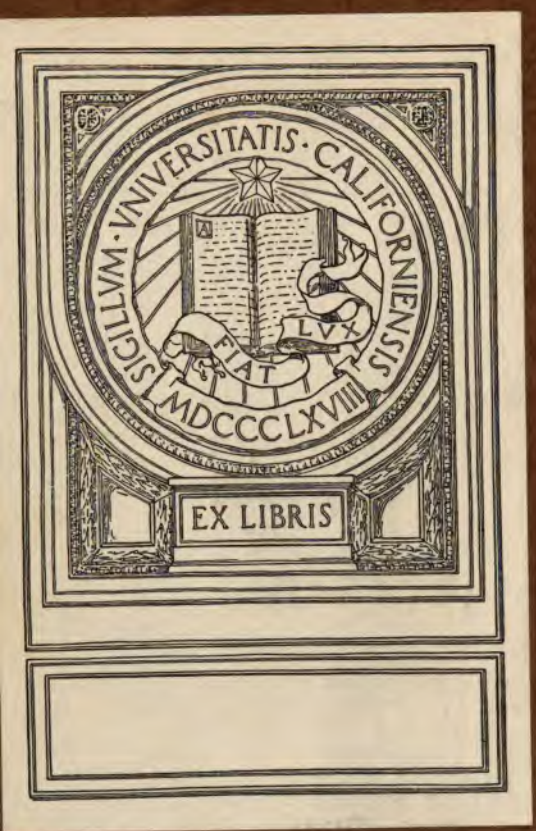
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What the Sister Arts Teach as to Farming.

AN ADDRESS

BEFORE THE

INDIANA STATE AGRICULTURAL SOCIETY

AT ITS ANNUAL FAIR, LAFAYETTE, INDIANA

OCTOBER 13TH, 1853

LIBRARY OF CALIFORNIA

BY HORACE GREELEY

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ADDRESS.

FARMERS AND FRIENDS: I stand before you at your Society's invitation, feeling the full force of the criticism which denies to one of my habits and pursuits capacity to instruct farmers as to their own especial vocation. "Shoemaker, stick to your last!" is a sound though sometimes misapplied admonition, and there is great strength in the natural presumption that every man can see a little farther on his own proper pathway than can be seen by any one else. I fully realize and cheerfully admit that any one of you, who has devoted the last twenty or thirty years to Agriculture, must know very much more concerning it than I, who abandoned it at fifteen to master and pursue a most exacting mechanical and intellectual vocation, and have since been able to snatch but here and there an hour from a constant pressure of imperative duties and oppressive cares to revive the memories of my youth among the busy seed-planters, or within sound of the mower sharpening his scythe. If I were to essay a lecture on the Complete Husbandman—to fix the proper time for planting this or that vegetable, and for harvesting this or that grain, and so on—I might, of course, be corrected, on many points, by some of the youngest of my auditors. Little as I know of farming, I know too much of it to attempt any such teaching. What I *shall* endeavor, is to set forth some of the principles which underlie the whole fabric of Productive Art and Industry, (my calling as well as yours,) and to show their application, as correctly as I may, to the Farmer's vocation as well as others. I may err in this or that application; but I shall endeavor to base my inculcations on prin-

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ciples so broad in their scope, and so vindicated by centuries of successful experience in a great variety of pursuits, as to be justly entitled to a place among the axioms of Industrial Science.

I. The first point, then, which I shall endeavor to illustrate, is that of Economy of Means—perhaps I should rather say, Harmony of Proportion—in the management of farms as of every thing else. For when I say Economy, I mean something as remote as possible from Parsimony. Cheap lands, cheap buildings, cheap labor, cheap stock, cheap trees or grafts, are as far from economy as anything well could be. By Economy of Means, I imply such a disposition or distribution of means, be they scanty or abundant, as shall insure to the operator the largest attainable return for his labor and skill. For example: I print newspapers for a living, and am obliged, by the extent of some of my editions, to use presses costing twelve to sixteen thousand dollars each. There is a real economy in so doing, because I could not otherwise dispatch my papers to their subscribers in acceptable season. But if any journal printing one-third or one-tenth so many copies, were to buy and use such presses, the policy would be wasteful and ruinous, although the editions would be thrown off with unwonted celerity and efficiency. The interest on the capital needlessly locked up in presses would probably absorb all the profits of the business, if not more. And yet this is the identical blunder that thousands of farmers persist in, by holding on to large farms, which cost thousands of dollars, and are very likely mortgaged or otherwise encumbered, while able or willing only to apply thereto the labor, science, skill and manures which are requisite and proper for farms one-fourth so large. Here is enormous waste—a loss of interest on three-fourths of the capital invested in land—a loss which may possibly be endured in farming, but which could not fail to prove ruinous in almost any other business.

Every farmer seems aware of the reality and magnitude of the general error in this respect, yet the great majority persist in being wise for their neighbors only, and not for themselves. And I apprehend the error with many originates rather in want

of thought than lack of knowledge. They plod on in the path beaten out by their grandfathers, not reflecting that a course which might have been advisable, or at least excusable, when a farm of three hundred acres was worth but a thousand dollars in cash, has been rendered utterly indefensible and suicidal by a gradual advance in the value of that farm to five or perhaps ten thousand dollars. He who can buy land at ten shillings per acre may afford to leave it untilled and unfenced for years, until its timber or its grass shall have become decidedly valuable; but when that timber shall have disappeared, the grass become the watched-for prey of droves of other men's cattle, and the land worth fifty dollars per acre, it is flagrant and culpable waste to blunder on as though it were still worth but ten shillings.

I once went to look at a farm of fifty acres that I thought of buying for a summer home, some forty miles from the City of New York. The owner had been born on it, as I believe had his father before him; but it yielded only a meager subsistence for his family, and he thought of selling and going West. I went over it with him late in June, passing through a well-filled barn-yard which had not been disturbed that season, and stepping thence into a corn-field of five acres, with a like field of potatoes just beyond it. "Why, neighbor!" asked I, in astonishment, "how *could* you leave all this manure so handy to your plowed land, and plant ten acres without any?" "O, I was sick a good part of the Spring, and so hurried that I could not find time to haul it out." "Why, suppose you had planted but five acres in all, and emptied your barn-yard on those five, leaving the residue untouched, don't you think you would have harvested a larger crop?" "Well, perhaps I should," was the poor farmer's response. It seemed never before to have occurred to him that he *could* let alone a part of his land. Had he progressed so far, he might have ventured thence to the conclusion that it is less expensive and more profitable to raise a full crop on five acres than half a crop on ten. I am sorry to say we have a good many such farmers still left at the East, though the advanced prices of land and the impoverished condition of the soils they inherited, with their slovenly modes of cultivation, have driven the greater share

of them to the West. Here, on your deep, virgin soils, they renew their round of exercises in false husbandry, wasting their manures because "this land is rich enough," and exhausting their soils by one grain-crop after another, until they run down their capacity from thirty bushels per acre of Wheat to ten of Corn or five of Rye, when they will be off again for Iowa, Missouri or Oregon. When they shall have got so far West as to find land that doesn't need nor reward fertilizing, and will not be worn out by *their* mode of farming, I trust they will come to a full stop and send for all their relations.

Let me be rightly understood: I do not condemn a man for *owning* more land, in a new country, where land is cheap, than he is now able or willing to cultivate. I know perfectly well that the system of thorough culture that succeeds so admirably in Belgium is not yet adapted to Indiana. Where good fenced pasture may be bought for eight or ten dollars per acre, you cannot afford to keep up your cattle and cut all their food, though that is excellent policy in its place. It insures the keeping of a much larger stock on a given area, beside enriching the land far more rapidly. But it requires vastly more labor, and where a week's work is worth an acre of arable land, it won't pay. What I insist on is simply this: *Land worth cultivating* AT ALL *is worth cultivating* WELL. Almost half the soil in my section never ought to feel the touch of plow-iron, unless for the purpose of striking fire on some of its abundant rocks. Such land should be kept covered from too particular observation by growth after growth of wood, giving variety and freshness to the landscape, and persistence, if not stability, to the streams. But wherever an acre is broken up, it should be with a fixed resolve to extract a good crop from it, and to use all the means requisite to that end. A field of spindling yellow corn, or stunted, straggling oats, or blossoming buckwheat that seems to have been compassionately sown for the accommodation of broken-winged bumble-bees, is a palpable impeachment of the capacity of its owner to manage land at all. If it can do no better than this, he ought never to have broken it up. If he *will do* such a stupid thing, he ought at least to keep his folly out of sight from the public highway.

I presume careful investigation would discover the existence of a pretty general Law of Proportion between the market value of a farm and the amount of labor that should be annually devoted to its cultivation, apart from enduring improvements. Let us suppose a farm of one hundred acres to be worth, this year, $10 per acre, or $1,000 in all; then we will say one man's labor, or three hundred days' work per year, worth $300 in all, might be as much as could be profitably bestowed on its mere cultivation. But roads and markets improve, until this land is worth $30 an acre, or the farm $3,000; and now much more of it may be taken out of forest or pasture, and devoted to grain and vegetables, involving an increase of the labor expended on it to three men's steady work, or $900 per year. So, as the value increased to $50, $75, and at length $100 per acre, the labor employed thereon should be correspondingly increased, whether by a division of the farm or otherwise. I do not profess to indicate the precise proportion of present labor to Valuation of fixed Capital, but only that there is such a proportion, and that Economic Science will yet ascertain and declare it.

It is not necessary that land should be cultivated in order to be productive. The young, growing wood is earning money for its owner, as well as the corn-field. He who has land that he does not need, yet wishes to keep for his children, can hardly serve them better than by inclosing it effectually, planting it with locust, hickory, and other choice timber, and leaving it undisturbed till his sons may require it. But, even left in open, naked common, land generally tends to improve from the renovating influences of the atmosphere alone, as the reclaimed "old-fields" of the South bear witness. It is only poorly farmed land that is a blight to its possessor, and a discredit to the country. If all the labor now devoted to farming, throughout the Union, were wisely concentrated on one-half the land, our annual product would be much larger, our lands would appear far more productive and valuable, while the timber that we are now wasting and destroying, as though Prophet Miller's speedy conflagration of the world were a demonstrated verity, would be gradually re-investing the earth with a beauty and graceful majesty which Cabot or John Smith

may have realized, but of which our children seem destined to have none but hearsay evidence.

I hold that Farmers may also learn of Mechanics and Artificers to estimate more highly and justly than most of them now do the importance and necessity of SCIENCE, or a profound and accurate knowledge of principles, to the efficient and profitable prosecution of their labors. The worker in Iron, for example, recognizes his need to know what is the nature and what are the properties of Iron; and not merely of Iron in general, but of the various qualities and kinds. Without this, he may blow or strike fairly in a blacksmith's shop, and may have learned to make a tolerable horse-shoe; but he has not risen to the rank of an artisan. Let him acquire a thorough knowledge of Iron in the abstract, and of the laws of chemical affinity which govern its combinations with other substances, and the practical knowledge he has gained in making horse-shoes may be made available in forging anchors, in making plows, or in a thousand other employments which, in the absence of Science, he must have approached as a novice, and learned from the beginning. Science is the bridge across which our practical knowledge, gained by experience, passes and repasses, to aid us at need in our stern battle with physical obstruction and stubbornness. He who knows how to do one thing well, and does it, is a good workman, so far as that special function is regarded; but he who is thoroughly grounded in the Science which underlies his vocation is enabled to master a dozen different arts or modifications of his pursuit with a celerity and perfection otherwise unattainable.

Now the farmer, who perfectly comprehends the value of Science in the construction of a bridge or a chimney, often seems not to appreciate so vividly its importance in his own vocation. His unexpressed but acted-on idea would seem to be that, while other industrial callings require instruction, method, abstract knowledge, Farming is a matter of instinct, or mechanical imitation. He seems to think a knowledge of its principles and laws "comes by Nature," as Dogberry supposed reading and writing did. He sends to college the son who is to be fitted for a profes-

sion, and to the Academy he who is to be qualified for a pedagogue, but he does not consider that one who is to have the farm on condition of taking care of the old folks, needs any other training for his life-long pursuit than that which is begun in the District School and finished behind the plow.

And yet there is not a good reason in the world for inducting a youth, who is to become a master-worker in iron, copper or lead, into a thorough knowledge of the material he is to fashion for a livelihood, which is not at least *as* good a reason for instructing the young farmer thoroughly and scientifically in the nature and diverse properties of soils. These are more various, more complex, less obvious, than those of any single metal. A good soil is always a compound, and the more various its materials the greater (probably) its value. A pure yellow sand or blue clay is easily comprehended and estimated; while one deep, black loam may, because of certain latent elements, be worth twice as much as another equally promising to the casual observer. No man who has not scrutinized its husbandry and productions for year after year is qualified to fix the value of a farm, any more than to cultivate it, without the ability to chemically analyze and accurately determine the composition of its soil.

But this, which I am commending, is sneered at as *Book*-farming, and sturdy old codgers who have sped the plow all their days, laugh till they almost fancy themselves witty at the idea of a man coming out of a college-chamber or a chemical laboratory to teach *them* how to grow corn or rear cattle. And truly, if the teacher were to commend his science as a *substitute* for their practical knowledge—as rendering experience unmeaning and personal observation superfluous—there would be ample provocation for sharper shafts of wit than these will ever be able to speed. But this no man has ever suggested or commended. The farmer best schooled in the nature and properties of soils, the laws which govern vegetation and the elements essential to form thrifty plants or animals, will learn from experience not less but more than his uninstructed neighbor. His observations will have a wider significance; and the fact newly observed to-day will be readily assigned to its proper place, where it will cast

light on other facts observed yesterday or to be observed to-morrow. Not to supersede experience, but to elevate it to a standpoint whence its range of vision will be broader, and its deductions more reliable, do we plead for Science in Farming.

What is in effect contended for by the advocates of Book-farming is simply this—that a farmer, like any artisan, while he needs practical experience, *may also profit by the practical experience of others.* For example: A new plant or vegetable is introduced, which our anti-book farmer concludes to try, though totally ignorant of its nature and season. Let us suppose the nearest neighbor who has ever grown this plant lives five miles away. Now, will not this new experimenter, if he have a decent share of common sense, ride over and ask the experienced cultivator what soil is best adapted to this plant; what manures are best for it, what time it should be planted or sowed, how cultivated, &c., &c.? Plainly, it would be sheer madness for him to omit such inquiries, and go on as if there had been no preceding experience, to answer all these questions and determine all these points for himself, by hap-hazard planting on every variety of soil, at every possible season, with any or every sort of fertilizer! By so doing he must spend several hundred dollars to determine what he might readily have ascertained at the cost of a dollar. Well; if he could turn to the proper page of an Agricultural Dictionary or Encyclopedia, and there learn exactly when this new plant should be sown in this latitude, how manured, how cultivated, &c., would not that be still easier and cheaper than to ride over to his distant neighbor's? Would it not be highly probable that the directions contained in the book, being founded on a wide range of experiments, would be more reliable and complete than his neighbor's counsel, based on his narrow personal experience? A prudent man would probably consult *both* book and neighbor, and then follow either only so far as his own judgment should dictate; but how can any one approve his taking counsel of one man's experience, yet condemn a course which is, in fact, but paying deference to the experience of many thousands?

II. But some say, "Consult and profit by all the experience

within your reach, but don't talk to us about Agricultural *Science*. Growing good crops is the Farmer's vocation, and in this pursuit experience is always a safe guide; not so what is called Science, which often misleads and impoverishes."

Let us consider:

Of course, there is much Science so-called, which is false Science—the brain-spun speculations and subtleties of idle and fanciful people, anxious to account for phenomena which they do not really understand. No one considers *such* Science worth anything; and it is one of the chief recommendations of *true* Science that it enables men to detect the pretender and unmask him. But Science implies a knowledge of Nature and her immutable Laws; and who can seriously doubt the importance of this to the Farmer? For instance:

We all know that a field of one hundred acres entirely devoted during five successive years to a rotation of Corn, Oats, Clover, Potatoes and Wheat respectively, would yield a far greater product than would that same field if divided into five equal parts and each devoted to some one of these products for five years in succession. Experience had settled this, before Science was allowed to say anything about it. When at last interrogated, for the reason or law which underlies this fact, Science made answer that each plant requires and exacts its peculiar nutriment, and that this is relatively if not absolutely exhausted by growing that crop on the same land year after year. It may be that the five plants above named all require Lime, Potash, Phosphorus, Ammonia, Carbon, &c., which, beside Water, are the chief elements of vegetable structure; but, if so, they require them in very unequal proportions or quantities. Grown each on its own twenty acres throughout the five years, one will have exhausted the Lime, yet have an abundance of Phosphorus left; another will have absorbed all the Potash in its division, yet hardly tasted the Lime; and so on; while, had the hundred acres been sown in rotation or succession entirely to one and then to another of these crops, or had the five been alternated from portion to portion

with each succeeding year, they would all have yielded abundantly, yet left no portion of the soil utterly robbed of any single element. Experience affirms that the rotation of crops has taken far more from the soil than the adverse system, which Science unhesitatingly corroborates, and adds that, while rotation has taken more from the soil, it has nevertheless left it in better condition to bear future harvests; and this Experience will in due time ratify and establish.

Here, then, Experience has been outstripped by Science, whose torch irradiates the Future with light drawn directly from the Present, not reflected from the Past. Experience has shown that a particular rotation is preferable to the growth of the same plant on the same soil for a succession of years; but Science forecasts beyond this, and affirms that *any* possible rotation must be preferable to incessant and unchanging repetition, for reasons which lie deep in the bosom of Nature and are inseparable from her very vitality. As surely as Experience has demonstrated the expediency of keeping cattle where they have grass and water both, instead of shutting up a part where they will have grass enough but no water, and the residue where they will have abundance of water but no grass or other food, so clearly does Science demonstrate the advantage of growing different crops in rotation.

But in answering our first question,—"Why should different crops be grown in rotation?" Science has thrown open a wide field of profitable inquiry. We have seen that five good crops of Indian Corn cannot be grown off the same ground for five successive years, unless by virtue of profuse and expensive manuring; because each crop has absorbed an undue proportion of certain elements or properties essential to Corn, leaving others, less vital to Maize, but more necessary to Wheat, Clover, &c., undisturbed in the soil. We now know, therefore, that any average soil, regarded with reference to any particular plant, possesses certain elements in excess, while it is deficient in others; and we demand of Science that she tell us just how we may most cheaply and easily supply, not elements of fertility in general, but those particular elements which are deficient, considered with reference

to our purpose. We desire not to spend our time and means in filling a soil on which Wheat is never to be grown with costly elements which Wheat alone will require or take up, but to invest each dollar and day, so far as we may, in enriching that soil with the elements wherein it is now deficient, but which our next crop will nevertheless require. In other words, since it is not our practice to plow, plant and cultivate our entire farms—forests, ravines and all—because we purpose to harvest Indian Corn and Wheat from a small part of them, so we desire to exercise a like discrimination and practice a like economy in the production or purchase and application of manures. And to do this, we appeal to Science for an analysis of the different soils of our various fields, to determine wherein each is deficient, each relatively redundant, that we may apply various fertilizers accordingly. And this is the basis, and *all* the basis, of Scientific Farming.

Let me linger still on this topic of Book-farming, and pile illustration on illustration of its true character and manifold advantages. You may tell me that this is needless, but I know better; since I know there are tens of thousands of farmers in every quarter—nay, right here in Indiana—some of them, I doubt not, now before me—who take no agricultural paper—nay, no paper at all!—because they think they *can't afford it!*—that it has no other than a speculative or fancy value for their use—that they would be the poorer for taking it! Now I maintain that no farmer or artisan that can read can really afford to do without at least three weekly newspapers; one to bring him the general news, politics and social movements of his time; another to teach him whatever of discovery, invention or improvement may from time to time be made in his own pursuit or calling; and the third to keep him advised of whatever of interest may transpire in his own locality or county. He may be so *very* poor and inefficient that he is justified in obtaining two of these by exchanges with his equally luckless neighbors; but these three he should at least read every week, because he cannot afford to be without the intelligence they bring him. And, while there are thousands who are bringing up sons for farmers and daughters for housewives without taking a periodical or even owning a book that treats of

Farming or Housewifery, it is absurd to say that this stupid prejudice against Book-farming has been already sufficiently dealt with, since it is this day so potent and mischievous. Bear with me, then, while I attempt to let in some daylight upon it through the relation of a few homely facts:

I was visiting some old friends in Vermont last summer, when I observed in the garden of one of them the most thrifty and luxuriant grape-vine that I had ever seen growing in so cold a climate. Now it is one advantage possessed by the class of ignorant cultivators to which I belong over that sort who not merely know nothing but glory in it, that we are not at all reluctant to confess our ignorance when we see a chance of thus mitigating it. I, therefore, at once asked the lady whose vine this was, to tell me by what means she had insured it such vigor and productiveness; and she replied that she had made it her rule, ever since the vine was set there, to throw a pailfull of soap-suds at its root at the close of every washing-day. Again: in the same garden I remarked a scar or ring around each plum-tree, just above the ground, and, on inquiry, ascertained that these trees had been girdled last spring by some malicious scoundrel, who had halted one dark night, on his way from the gutter to the State prison, to perpetrate this dastardly outrage. The owner discovered the mischief early next morning, and, having a pot of copal varnish in the house, speedily applied it with a brush to the wound on each tree, covering each with a coat of varnish; and by this means every tree was saved. When I saw them in midsummer, they were as green and thrifty as any trees within miles. Now I do not stand here to maintain that soap-suds will *always* insure an abundance of fine grapes, nor that a coating of varnish, seasonably applied, will *always* save girdled trees; for I do not know such to be the fact. I trust further experience and inquiry will cast light on both points—that soap-suds will be withheld from the door-yard and given to the grape-vines; and that every tree that any prowling rascal may girdle will be promptly coated with varnish—until we shall determine under what circumstances, and with what limitations, potash or soda is beneficial to grapes and varnish an antidote for girdling. The point I make is this,

that no sane farmer, having heard this relation, will henceforth throw away his soap-suds or neglect varnishing his girdled trees, unless he learns some reason for doing otherwise; and that, if he would do so on the strength of my mere narration, he ought many times rather to do so had he found these same recipes in an Agricultural paper or manual, where the chances are ten to one that it would not have found a place unless on the strength of testimony more reliable than mine, because founded on a wider and more varied experience, and subjected to a more rigid scrutiny.

Take another case: My friend Dr. R. T. Underhill was a physician in extensive practice some twenty years ago, when in the prime of life, having become heartily tired of gallipots and bone-sawing, he shook off the dust of our city from his feet, and resolved henceforth to live an honest life as a grower of fruits. He went forty miles up the Hudson, bought a neck of land, and commenced the cultivation of the Grape, which he has since prosecuted with scientific knowledge, untiring energy, and at length with decided success. He has probably assuaged more suffering with his grapes than he ever created by his drugs; he has grown considerably younger by his twenty years' farming, and is now taking his place among the most brisk and genial of our youth—an admirable specimen of that branch of "Young America" which does not hate to work nor long for opportunity to steal.

Well: the Doctor, since the untimely death of the lamented Downing, stands, probably, at the head of our fruit-growers, with whom one knotty problem of the last few years has been—how to counteract the ravages of the Curculio, which is nearly robbing us of plums, for which his taste is equal to ours, while in the matter of gratifying it he is decidedly ahead of us. By the time he has taken his quota, the plums left on a tree, or score of trees, are not worth gathering. But Dr. Underhill, by long study and careful observation, has discovered the means of completely outwitting him. He has found, by watching and noting her movements, that the female Curculio will not deposit her eggs where they, when the plums containing them drop, will fall into the

water, her instinct teaching her that they will thus be drowned. Taking advantage of this instinct, the Doctor plants his plum-trees on the bank of a stream or pond, and gives the trunks such an inclination that all their branches overhang the water. Thus the desolater is checkmated by his own instinct, and the fruit preserved from his ravages. I know nothing cleverer in its way than this device.

Now I suppose there is no contemner of 'Book-farming' so mulish or so dull that he would not, after hearing of this device, take advantage of any brook or pond he might have on his premises, and set his plum-trees where they will be safe from the Curculio. But suppose the discovery had been made by some fruit-grower of the last century, and duly recorded in a book; had since been subjected to a thousand ordeals, and had passed triumphant through them all—would it have been less acceptable or less valuable than it now is? If it be worth our while to learn at all, what difference can be imagined between the knowledge founded on a neighbor's experience and that contained in a book? If there be any, are not the odds altogether in favor of that prescription which has undergone the wider scrutiny and been subjected to the more rigorous criticism?

And here let me speak of another, who more recently shook off the dust of our City's pavements to spend the later half of his life on a farm. I allude to Professor JAMES J. MAPES, whose fame as an Agriculturist must have reached very many among you. It cannot be many years—it seems to me but five or six—since Professor Mapes, who was extensively engaged in Sugar-Refining and had heavy dealings in Sugar—came to a dead halt, or rather a dead smash. Stripped of means and of credit, he felt too old to launch again on the dangerous sea of Commerce, whose waves had so lately and so deeply engulphed him; so he hired a bit of land in New Jersey, removed his family thither, and resolved to turn the chemical and other scientific knowledge which had so little availed him as a Sugar-Refiner, to account in the novel vocation of a farmer. He was very destitute, and of course got on but slowly at first; and when he first undertook to lecture in

illustration of Farming as a Science, I well remember how very general was the prejudice and derision he encountered. But he persevered both in farming and lecturing; and he has gloriously succeeded. I presume there were many errors in his earlier inculcations; there may be some yet, for he is a genius, and genius is too apt to leap hastily to sweeping conclusions from inadequate premises. But, whatever his faults, the root of the matter was in him, and his career has proved it. As a Lecturer, an Editor, and as a Practical Farmer, he is enriching the vocation he has chosen and by no means impoverishing himself. Beginning with nothing, he cannot have cleared less than $20,000 in the last six years, and his income must now be at least $5,000 per annum. And this is not all made by merely talking and writing about farming, but in good part by actual work. For example: He last year bought ten acres of naturally good but exhausted and weedy land adjoining him for $250 per acre, pulverized and fertilized it thoroughly to the depth of two feet, planted it with cabbages as close together as they could grow, and by the sale of his first crop paid for the manure, labor and land, having the latter all clear at the year's end, and in far better condition than when he bought it. Can any enemy of 'Book-Farming' beat this? Or is there any of them who would not like to know exactly how this land was fertilized and tilled, even though he should be obliged to read it in a book or periodical?

III. Let me next illustrate the importance and advantages of the careful Analysis of Soils:

A friend bought, one year ago, a small farm which had previously been under decent or ordinary cultivation, but which, it appears, had been for many years mainly fertilized with Gypsum or Plaster of Paris—an excellent thing in its place, and which had doubtless done the land good service. But the new farmer's brother is a thorough Chemist, devoting much attention to Agriculture; and he was invited to analyze the soil of this farm with a view to its prospective and economical improvement. Careful Analysis showed a signal deficiency of Lime, but a superabundance of Sulphur and other ingredients of Plaster. Of course, at

each successive application of Plaster the plants took up the Lime only, leaving all the residue to lie inert in the soil; and so the old farmer had for years been feeding his soil, at the rate of twenty to thirty cents per bushel, with the requisite Lime brought from a distance in the form of Plaster, while there was far better Lime burned all around him, and for sale in abundance at six cents a bushel! The loss thus incurred may have averaged fifty dollars per annum—all for want of an Analysis that might have cost ten to twenty dollars. And there are tens of thousands to-day farming just as blindly as did this old farmer.

Can there be any rational wonder that farmers seldom grow rich by such Farming? How is a wise and judicious economy of means to be attained if ignorance and waste are to reap the rewards properly due only to intelligence and frugality? If I were to buy paper and other materials used in my business as carelessly and blindly as this old farmer bought manures and fertilized his land, I could not continue to print newspapers for a single year. Wiser, more prudent, more intelligent publishers, would undersell and supplant me, and I must fail and be driven into some vocation where ignorance, heedlessness and unthrift secure the rewards designed by Providence for intelligence, industry and economy.

IV. But let us pause at that word Industry. "By Industry we thrive," is an old saw, which is very well in its place; but the truth contained in proverbs is so curtly expressed that it often misleads more than it directs. Industry is indeed essential to thrift, and farmers, like other men, often need to be reminded of it. When I note one who is overwhelmed with "business," which calls him away from home two or three days in each week, and keeps him hanging about the tavern or store while his boys are at play and his potatoes crying for the hoe, I know whither *that* farmer is tending, and can guess about how long he will have any land to mismanage. And I think that, in the average, farmers waste more hours than mechanics. They have more idle time—not necessarily, but quite commonly so regarded—through bad weather, severe cold, too much wet, &c. than falls to the lot of

almost any other class; and it is very easy to allure many of them away to shoot at other men's turkies when they should be growing food for their own. But while many waste precious hours, quite as much through heedlessness and want of system as indolence, I know another class who slave themselves out of comfort and out of thought by incessant, excessive drudgery,—who are so absorbed in obtaining the means of living that they never find time to live—who drive through the day so that their bones ache and their minds are foggy at night; and are so overworked through the week that they can neither worship God nor enjoy the society of their families on the Sabbath. These men will often tell you they have *no time to read*, which is just as rational as for the captain of a steamship to plead a want of time to consult his compass and chart or keep a reckoning of his ship's progress. No time to read! do they not find time to plant and sow, to reap and mow, and even to eat and sleep? If they do, then they may find time, if they will, to learn how to apply their labor to the best advantage as well as to qualify themselves by rest and refreshment for working at all. I venture the assertion that there are twenty thousand farmers in Indiana who would have been wealthier as well as more useful, more respected and happier men this day, if they had abstracted ten hours per week from labor during all their adult life, and devoted those hours to reading and thought, in part with a view to improvement in their own vocation, but in part also looking to higher and nobler ends than even this. Some men waste the better part of their lives in dissipation and idleness; but this does not excuse in others the waste of time equally precious in mere animal effort to heap up goods and comforts which we must leave behind so soon and for ever.

V. I read very few old books; I can hardly find time to master the best new ones; but I have no doubt that those who *do* read the very oldest treatises on Agriculture which have survived the ravages of ti[illegible], will find Cato, or Seneca, or Columella, or whoever may be the author in hand, talking to the farmers of his day very much as our farmers are now generally talked to, and inculcating substantially the same truths: "Plow deeper, fertilize more thoroughly, cultivate less land, and cultivate it better;"

such, I have no doubt, has been the burden of Agricultural admonition and exhortation from the days of Homer and Moses. It seems incredible to modern skepticism that millions of Hebrews could have for ages inhabited the narrow and rocky land of Judea; and it *would* be hard to believe, if we were ignorant of the Agrarian law of Moses, under which, as population increased, the inalienable patrimony of each family became smaller and smaller, and the cultivation of course better and better. Very few of us are at all aware of the average capacity of an arable acre, if subjected to thorough scientific culture. Many a family of four or five persons has derived a generous subsistence for year after year from a single acre. The story of a farmer who was compelled to sell off half his little estate of eight or ten acres, and was most agreeably surprised by finding the reward of his labor quite as large when it was restricted to the remaining half as when it was bestowed on the whole, was very current in Roman literature two thousand years ago. Why it is that men persist in running over much land, instead of thoroughly cultivating a little, defying not only Science, but Experience, the wisdom of the fireside as well as that of the laboratory, can only be accounted for by supposing that men have a natural passion for annexation, a pride in extended dominion, or else a natural repugnance to following good advice. Surely, if Wisdom ever cried in the streets, she has been bawling herself hoarse these twenty-five centuries against the folly of maintaining fences and paying taxes on a hundred acres of land in order to grow a crop that might have been produced from ten.

But the sinners against light and knowledge in our day have far less excuse than their remote ancestors, or even their own grandfathers. It was always well to urge deep plowing and the like; but so long as the plow was but a forked log or stick, with one prong sharpened for a coulter, and the other employed as a beam, it was hardly possible to plow thoroughly. In our day, however, the advance from wooden plows through iron points and iron mold-boards, to iron plows, steel points, steel plows, and subsoiling, has been so signal and decisive that the shiftless creature who with his two lean ponies skims and skins over the fields he

ought either to cultivate or let alone; scratching their surface mildly to a depth of three or four inches; sins against such an array of light and knowledge that he is far less excusable than his ancestors who did not pretend to plow at all, but stuck in a seed here and there as they could easiest find a hole or make one, and trusted to Providence to give them an undeserved return for their spiritless and frivolous efforts.

VI. The three main features of Agricultural advancement among the Anglo-Saxon race now-a-days are: 1. DEEP PLOWING, OR SUB-SOILING; 2. DRAINING; 3. IRRIGATION. I am quite aware that Draining should take precedence in the order of time, yet I believe, in point of fact, Deep Plowing has led to Draining, by demonstrating its necessity, and not Draining to Deep Plowing. We suffer immensely from drouth in this country. Probably the aggregate annual loss from drouth alone throughout the Union decidedly exceeds, taking one year with another, the entire cost of our Federal Government. Yet we know that the roots of most plants will descend to moisture, no matter how dry the surface, if the earth beneath them is porous, mellow and inviting. Hence we realize the immense importance of Deep Plowing; and, after doubling our teams and sinking our deepest plows to the beam, we summon to our aid the Sub-Soil implement, and go down a depth beyond that of any single furrow. But we soon find that the pulverization of the sub-soil, thus attained, has no permanent effect; that the water that leaches down to it settles it into a compact, solid mass, which the roots cannot penetrate; and all our sub-soiling needs to be done over again. The remedy that readily suggests itself is the freeing of the sub-soil from water by drains sunk below it, say three to six rods apart, and filled half way up with pebbles, with flat stones forming a sort of culvert, or, still better, laid with draining-tile or hollow brick, placed end to end, and forming a continuous channel from the highest part of any slope or grade to the brook which drains it. And now the sub-soil, supposing the drains well made and the drainage-way sufficient, is readily freed from any water settling into it, and long retains the porous and permeable character communicated to it by deep plowing.

Of course, this does not exhaust the good effects of Draining. The sub-soil, thus loosened and freed from excessive moisture, becomes a source of food as well as drink to the plants growing above it; for that it is capable of feeding plants, no one, who has observed the rank vegetation growing out of the earth thrown up by draining or digging, can doubt. Instead of being like a slough in wet weather and like a brick in dry, the sub-soil retains sufficient moisture to cheer the plants, but too little to indurate itself. And the mean temperature of the soil, hitherto lowered by the constant evaporation of the water contained in the sub-soil, is raised several degrees by the sun's rays, no longer counteracted by the evaporating process—at least, not to any such extent as before—so that the plants grow more luxuriantly, mature more rapidly, and so are earlier out of danger from frost. And beside this, the constant passage of currents of air through that portion of the drain not occupied by water—and each drain should have an opening at its head as well as at its mouth—is an additional source of fertility through the chemical combinations it insures. It would be difficult to overstate the value, the importance, the profit of Draining.

Many are accustomed to say, "*This* land needs no draining;" meaning that it is not habitually too wet. But draining proves as useful, if it is not as imperatively necessary, on dry soil as on wet. On dry lands it is required that the sub-soil, once broken up and pulverized, shall not, by the settling of moisture therein during the wet season, be hardened and rendered impervious again; these lands need to be rendered porous and penetrable by roots to a greater depth *because* of their dryness; they need to be shielded from the pernicious effects of constant evaporation in cooling the soil, and thus retarding the growth of its plants. There is very much land not worth tilling; but there is none that will justify tillage which would not reward Draining.

Of Irrigation, we in this country know very little by experience; but we are destined soon to know more, and to be profited by our knowledge. True, there are lands that may be readily drained and sub-soiled that cannot so readily be irrigated, owing

to their elevation and a deficient supply of water. I apprehend, however, that these lands are not to be found in Indiana, nor in any other Prairie State, whose first peculiarities that strike a stranger are a superabundance of water in the rainy season and a scarcity thereof in the dry. The time is at hand when you will here require extensive and powerful pumping apparatus, if only to raise water for your heavy stocks of cattle and convey it to the pastures wherein they will be confined; and why not raise enough of the grateful fluid to refresh pastures and cattle alike?

But even though this assured and ample resource were non-existent, I maintain that water enough falls on your fields every year to keep them fresh and luxuriant through the summer, if it were saved and not wasted. But most of it falls during the seasons when least is wanted, and is suffered to run off to the rivers and the ocean, carrying very much of the best juices of the soil along with it, when it should be retained in ponds and reservoirs to be pumped into barn-yards or drawn off to irrigate the fields during the fervid heats of summer. The apparent difficulty of doing this would vanish and the presumed expense be materially lessened on careful consideration.

I know not that I have traversed any country with more lively interest than beautiful, bountiful, picturesque Lombardy. The dark pall of Austrian despotism enveloping it did not suffice to dim its natural loveliness and luxuriance, so greatly improved by the labor and genius of Man. It seems to have grown into its system of almost universal irrigation by imperceptible and unmarked degrees, and to be now producing double harvests annually as the result of some fortuitous impulse rather than of foresight and deliberate calculation. The magnificent plain of Upper Italy, which has for so many centuries been the field of combat where Goth and Latin, Frank and Hun, Gaul and German, have struggled for the mastery of Europe, slopes almost imperceptibly from the Alps to the Po, and the impetuous torrents which tear the rocky sides of the snow-crowned precipices are arrested and chastened in the blue Lakes which lie at the foot of the mountains, smiling serenely out upon the plain. Thence the waters proceed

with a more gentle and measured cadence to the great River, and are drawn off and stayed from point to point to fill the irrigating canals and insure a rich reward to the husbandman's labors. Let any stream from heavy rains become a raging, foaming, milky torrent, and its waters have a value which the pure element could not command, and are drawn off on every side until the canals and reservoirs are filled and all danger of inundation precluded. Thus the waters are most valuable for irrigation just when they are most easily and abundantly obtainable for that purpose. The water which has irrigated one fertile garden or field, far from being exhausted, has been rendered more nourishing thereby, and may now be drawn off to fertilize the next field, lying an inch or so lower, and thence to the next, and so on to the river, enriching and gladdening all it touches on its way. Irrigation is the life-blood of Lombardy; shall it be nothing, teach nothing, to us?

If there be a country on earth which one would suppose irrigation unsuited to, Great Britain is that country. Her exceedingly moist, cool climate, coupled with her compact, clay subsoil (not universal, but very extensive) would seem to render a deficiency of moisture one of the very last evils to be apprehended or guarded against in her Agriculture. And yet her best farmers are now embarking rapidly and extensively in Irrigation, finding it practicable and immensely profitable. Not here, as in Lombardy, is the natural flow of the streams, in their descent from the hills to the rivers, relied on; but great pumps are employed, raising water by steam or other power from rivers, brooks and ponds, to a hight whence it is carried by gravitation through metallic and gutta-percha pipes to every point where it is needed. Mr. Mechi, the ex-London merchant, who retired from trade with a competency to earn another by scientific farming, takes the lead in this application, and his estimates of the increased productiveness of lands by reason of irrigation and the profits thus secured would seem wild to any audience unfamiliar with the subject. I may state, however, that he fixes the expense of conveying his manures in liquid form from his yard to every portion of his estate as equivalent to one penny sterling or two cents per cartload

—that is to say, the fertilizing properties which were contained in a tun of muck or compost are now conveyed to the soil that requires them at the cost of one penny. That loading, teaming, unloading and spreading in the old way must have cost far more than this, you cannot doubt: beside, the fertilizing liquid, being entirely free from seeds or weedy germs of any kind, and in a condition to be readily and totally absorbed by plants, must be worth twice as much as if applied in the old way. Now consider that this load of manure has been conveyed through and applied with many tuns of water, just when the soil is most thirsty, and the plants most needy, and you can readily judge that the tun of manure dissolved in water and applied through irrigating pipes at the cost of a penny, must be worth at least thrice as much as the same tun applied in the crude, solid state, at a cost of not less than thrice that sum. But I must not dwell on details. You have the general idea, and can follow it out at your leisure into all its necessary results.

VII. What the Sister Arts teach as to Agriculture may be fairly summed up in this proposition:

THE WORKMAN SHOULD BE COMPLETELY MASTER OF HIS MATERIALS AND HIS IMPLEMENTS. He should first thoroughly understand, in order that he may in the next place thoroughly control, the elements from which he is to evolve value and sustenance. He who should undertake to build a ship, in ignorance of the relative tenacity and resistance to pressure of the various woods and metals, would rush into a pursuit for which he had no capacity; so would he who should undertake the running of a steam-engine in ignorance of the nature and power of steam. Yet the man who attempts to farm with an imperfect knowledge of the nature and properties of Soils in general, of the laws of Vegetation, the qualities and peculiarities of the particular soils whereof his farm is composed, and the cheapest means of renovating and increasing their fertility and productiveness, stands on the same platform with the ignorant shipwright or engineer, and braves like disasters, whereof the largest share will naturally fall to himself and his family. Agriculture is a pursuit so vast in its scope, so

various in its processes and objects, that it is difficult to lay down a general rule with regard to it that will admit of no exceptions; yet I will venture to propound one, which is as follows: *The cultivator whose farm is not more valuable and more productive as one result of each year's tillage, does not understand his vocation, and ought to learn it or quit it.*

Perhaps there is no single field of observation wherein the extent and disastrous effects of ignorance among farmers are more strikingly exhibited than in that of Insect Life and Ravages. It has pleased the All-Wise to subject Agriculture to the chances and perils of Insect depredations, as well as to weeds, drouth, frost, inundation, and other evils. The end of all these is beneficence—the evolution and discipline of Man's capacities through the necessary counteraction and combat. Plants and domestic animals rightfully look to their owner for efficient protection; and he who allows his sheep to be killed by wolves, his fowls to be carried off by foxes, or his grain to be devoured by insects, is culpably faithless to his dependents and his duty. Yet how listlessly, thoughtlessly, hopelessly, do we see farmers stand by while their crops are destroyed by worms, birds, or weevil, without seeming to know that they have anything to do in the premises? No Turkish fatalism is blinder or blanker than theirs. It is hardly yet six weeks since I saw whole counties of my own State covered and devastated by grasshoppers, who stripped the dry uplands of every blade of grass, almost every green leaf, cutting the green oats from their stalks, the fruit from the trees, devouring corn in the ear, making the cleared land a desert, and pushing the cattle to the very verge of starvation. Yet there stood the farmers, gazing gloomily from day to day at the destruction of their cherished hopes of a harvest and the utter desolation of the whole country, yet not one asking of another, "What shall we do to arrest this sweeping ravage? How shall we most readily, cheaply and surely clear our lands of these vermin?" I do not pretend to know what the proper remedy was or is; but this I *do* know, that, had *I* been one of these farmers, I would have found a remedy or bankrupted myself in the search. I should have first interrogated the best authorities on Agriculture

and Natural History, and, in case of finding no guidance there, I should have sowed one acre of my land bountifully with Salt; the next with Plaster; the next perhaps with Nitre; a fourth with Potash; and so on, using in all cases substances that I knew would be paid for by future harvests, unless I had reason to believe something else would be more efficient. Thus, before one week had elapsed, I would have found some caustic that grasshoppers could not abide; and having found it, I would have applied it until the last cormorant among them had been driven into the woods or turned over on his back. And this is the spirit in which every such invasion should be met and overcome. Had the farmers of any township promptly met, when the ravage first became serious, and agreed that one of them would try one possible antidote and another another, according as they happened respectively to have the material at command, and met again a few evenings later to compare notes on the results of their several experiments, they could not have failed to discover an efficient remedy within the first week. But they did nothing; and hence many of their farms are a desert, their Fall crops next to nothing, and half their cattle must be sold or killed for want of food.

Our farmers generally think and work better out of their own vocation than in it. A distant and towering evil arouses their hostility and evokes their energy much more readily than one of a less imposing but more mischievous character which assails them in their homes. Let the word go forth, "An army of invaders have landed!" and tens of thousands snatch instinctively their muskets and take the road; but here are armies all around them who are plundering them worse than any invaders would, yet hardly attract their notice. The Hessians who were hired to subjugate our fathers had no rest for their feet until the last of them was killed, captured or hunted home, more than seventy years ago; yet their attendant parasite, the Hessian Fly, has been plundering us ever since without resistance, and is now as formidable and destructive as ever. I cannot believe flies more difficult to conquer than men, if we would but fairly set about it.

VII. And here let me retrace my steps to illustrate a point in

Industrial Economy which I have already incidentally touched, but have not illustrated as its importance deserves, and as the prevailing misconceptions render necessary. I refer to *The Proportion of Means to Ends,* which the Artisan must always bear in mind, but which the Farmer seems too often to forget. No artificer presumes that the labor and materials required for a fine table will suffice for a piano-forte; nor that a steam-engine can be constructed as cheaply as a churn. But the farmer, seeing trees and plants grow around him with weed-like facility and tenacity, often indolently imagines that *any* tree will grow so, and plants his rare and delicate fruit-trees, if he plants such at all, as if they were oaks or locusts. But Nature is inexorable in her requirement that the labor and care essential to the production of a choice fruit or plant shall be proportionate to the value of the product. You may grow Pine on yellow sand or Hickory on blue clay; but if you want choice Pears or Peaches you must devote much labor and expense to preparing and enriching the ground wherein your trees are to be set. Too many farmers, not heeding this law, or supposing that Nature may somehow be circumvented, obtain worthless fruit or none at all, and so abandon the culture in disgust and despair.

There is not now one grape-vine or fruit-tree, except of the coarsest and commonest kinds, where there should be twenty, taking one State with another; and one consequence of this is an enormous and perilous consumption of flesh as food, to an extent unknown in other countries. We are nationally surfeited with pork and tainted with Scrofula, not because we are so fond of pork, but because, for an important portion of each year, the majority of our population can get little beside. "The foolishness of preaching" will never suffice to correct this aberration; for men who work must eat, though their food be not the best; but give us an abundance of the choicest fruits and vegetables, with farmers who know how to grow them, and truly educated housewives, who delight in preparing and serving them, and we shall enjoy health, elasticity and longevity to an extent now unknown. A flesh diet is the dearest, the least palatable and the least wholesome, and all that is needed to wean men from it is the presenta-

tion of a better. To secure this, we need only farmers who will feel a just pride in having the finest orchards and gardens—who will surround, not merely their own dwellings, but those of their tenants and helpers also, with choice trees; and who will plant and keep planting until good fruit shall be so abundant that it can be no longer an object to steal it.

—But I detain you too long, though many suggestions crowd upon me which I would gladly develop, did time permit. I would like to illustrate that inspiring theme, THE HARMONY OF INTERESTS between Farmer and Manufacturer, which renders each new factory or workshop established in an agricultural county or district a positive accession of wealth to every farmer who lives within the radius of its influence. You may readily perceive the addition of value given to each farm in Indiana by any canal or railroad which cheapens the cost of sending that farm's surplus produce to market—that is, to producers of the wares you require or the fabrics you consume;—and how much greater must be the saving, the benefit, to Indiana, of bringing to her soil or near it, instead of the fabrics, their manufacturers, so as to render them perpetual and more extensive consumers of her produce, I need not surely insist on.

But I pass over this and kindred topics, not as out of place but out of time, to dwell for a moment on the necessity that every where exists for increased facilities to Practical Education.

I have been exhorting your young farmers to study and master the vocation to which their lives are to be devoted—and that is right—but what if they were to turn on me with the inquiry—"*Where* shall we study?" How shall I answer them if they ask, "How and where are we to learn how to analyze soils and make ourselves familiar with all the Science which lies at the base of Agriculture as well as Mechanics?" I can only say to them, "We in New-York are determined, as soon as may be, to have a PEOPLE'S COLLEGE to teach these important, vital truths to all who seek them, and to enable them to pay their way by their labor while learning; and we trust you in Indiana will speedily

follow if you do not precede us." That is the best that can be said to-day; I trust ere long to be able to speak more to the purpose.

I do not seek to disguise the magnitude and the difficulty of the work I contemplate—that of revolutionizing our Agriculture, and making it the most elevated and ennobling, because the most intellectual, pursuit of man. I realize the mountains of Prejudice that are to be leveled, the Dead Seas of Ignorance that must be filled up, the constitutional immobility of Conservatism that must be overcome, before the end can be attained. But I see also how "the stars in their courses" fight in behalf of Progress and Enlightenment—how immense has been the march of Intelligence as well as Invention and Physical Improvement in our age—how the Steamboat, the Railroad, the Steam Press, the Ocean Steamship, the Electric Telegraph, are speeding us onward with a momentum the world has never before known—and I hear a voice from all these and many a kindred impulse and influence, bidding Man the Cultivator advance boldly and confidently to take his proper post as lord of the animal kingdom and wielder of the elements for the satisfaction of his wants and the development of his immortal powers. I hear them calling him to vindicate the discernment or the prescience of those glorious old Greeks who gave our Earth in her young luxuriance the name of *Kosmos* or BEAUTY—a name belied by our scarred and stumpy grain-fields, our seared and barren pastures, our bleak and arid deserts, our foul, malarious marshes; but which Science shall yet justify and joyous Labor perpetuate. In spite of all distractions and impediments, "the world *does* move," and even the most sluggish and stubborn are carried along with it. Our Agriculture, as a whole, is more skillful and efficient than it was thirty or forty years ago; and it is now improving in accelerated ratio. Even I, the descendant of a line of poor cultivators, stretching back, very likely, to him who through his own blindness and fatuity lost the situation of head-gardener in Eden—even I feel the all-pervading impulse toward improvement and reform. I can never be a Scientific farmer—I am too old and too heavily laden with duties and cares for that—but my son, if he lives, shall be. The little I can teach him

shall at least inspire him with a craving for more, and set him on the right track to learn it. And thus tens of thousands are growing up all around us—children, perhaps, of ignorance and inefficiency—who shall be leaders and guides in the great work to which this Address is a feeble but earnest contribution.

Hawthorne, in his "Three-Fold Destiny," tells the story of a young man who wandered all the world over in quest of three wonderful incidents, which, it had been predicted, should occur to him; and returned disappointed and spirit-broken to find them all under the shadow of his paternal roof. I perceive in this tale, as in every work of true genius, some reflection of a universal fact; an appeal to the general experience and the heart of Humanity. How many have chased deluding phantoms through the fervid noontide of life, only to find, as evening shadows drew around them, that Ambition had no goal, Achievement no triumph, to equal the calm, perennial joys of a humble rural home!

I commend the moral of Hawthorne's story to our young men, who are from year to year setting forth so bravely to wrench fortune from the golden sands of California, or win her among the young cities that, emulating the growth of Jonah's gourd, are beginning to dot the American shores of the great Pacific. Far be it from me to insinuate that their venture is a wild one, and their hopes necessarily doomed to ultimely blight. I have faith in American energy; still more in sturdy, persistent, intelligent Industry; and I feel sure that a clime so genial, a country so diversified in its natural features, a soil so deep and virgin, as those of California, must proffer many inducements to the hardy, resolute pioneer, even though that soil be here and there sprinkled with gold. Such an enterprise as the peopling and settling of a country so new and so remote from prior civilization, will, of course, demand its martyrs: in its prosecution thousands will die, and tens of thousands fail; but the enterprise itself will neither die nor fail; and many of those who fitly embark in it will achieve, at last, success and competence. What I would say is addressed rather to the tens of thousands whom filial or parental ties retain among us, while they impatiently champ the bit and

say, "Why am not *I*, too, at liberty to cross the Rocky Mountains and gather my share of the golden harvest?" To these I would earnestly say, "Believe not, repining friends! that California and fortune are inseparable, nor forget that there were broad avenues to success and competence before Fremont unfurled his Bear standard in the valley of the Sacramento." Nay: be assured that, right here in Indiana, are ample *placers* for all who will resolutely and wisely work them—*placers*, whereof the yield may be less per pan or day than that of some of the richest "gulches" on the Feather or the Yuba; but then it is certain, inexhaustible, and sure to prove more and more abundant with each returning season. The deeper *these* mines are worked, the more ample is the return; they require no outlay of skill or labor in "prospecting;" for every arable rood will reward the digger's efforts, and from the Ohio to the Missouri he will find hardly any other than "pay-dirt."

As for me, long-tossed on the stormiest waves of doubtful conflict and arduous endeavor, I have begun to feel, since the shades of forty years fell upon me, the weary, tempest-driven voyager's longing for land, the wanderer's yearning for the hamlet where in childhood he nestled by his mother's knee, and was soothed to sleep on her breast. The sober down-hill of life dispels many illusions while it developes or strengthens within us the attachment, perhaps long smothered or overlaid, for "that dear hut, our home." And so I, in the sober afternoon of life, when its sun, if not high, is still warm, have bought me a few acres of land in the broad, still country, and, bearing thither my household treasures, have resolved to steal from the City's labors and anxieties at least one day in each week, wherein to revive as a farmer the memories of my childhood's humble home. And already I realize that the experiment cannot cost so much as it is worth. Already I find in that day's quiet an antidote and a solace for the feverish, festering cares of the weeks which environ it. Already my brook murmurs a soothing even-song to my burning, throbbing brain; and my trees, gently stirred by the fresh breezes, whisper to my spirit something of their own quiet strength and patient trust in God. And thus do I faintly realize, though but

for a brief and flitting day, the serene joy which shall irradiate the Farmer's vocation, when a fuller and truer Education shall have refined and chastened his animal cravings, and when Science shall have endowed him with her treasures, redeeming Labor from drudgery while quadrupling its efficiency, and crowning with beauty and plenty our bounteous, beneficent Earth.

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